

CHAPTER 34

The Biosphere: An Introduction to Earth's Diverse Environments

Chapter Objectives

Opening Essay

Compare the unusual ecology of the Himalayas and deep-sea hydrothermal vent communities.

The Biosphere

- 34.1 Define and distinguish between the different levels within ecosystems. Distinguish between the biotic and abiotic components of an ecosystem.
- 34.2 Summarize the subject and impact of Rachel Carson's influential book *Silent Spring*.
- 34.3 Describe the abiotic factors that influence life in the biosphere.
- 34.4 Describe the adaptations that enable pronghorns to survive in the open plains and shrub deserts of North America.
- 34.5 Explain how global climate patterns are influenced by solar energy input as well as the movement of Earth through space. Explain how landforms affect local climate.
- 34.5 Explain why the seasons of the year, prevailing winds, and ocean currents exist.

Aquatic Biomes

- 34.6 Describe the abiotic and biotic characteristics of the different ocean zones and adjacent aquatic biomes.
- 34.7 Describe the different types of freshwater biomes.
- 34.7 Explain how the properties of a river change between its source and its outlet, and how this impacts the biotic components of this biome.

Terrestrial Biomes

- 34.8 Explain why species in widely separated biomes may have similar features.
- 34.8 Explain why storms and fire are crucial factors in some biomes.
- 34.8–34.17 Describe the characteristics used to define terrestrial biomes. Then use these characteristics to define the major terrestrial biomes: tropical forests, savannas, deserts, chaparral, temperate grasslands, temperate forests, coniferous forests, tundra, and polar ice.
- 34.18 Explain how all parts of the biosphere are linked by the global water cycle.